

CLAIMS:

- 1) A network entity for remotely controlling a plurality of locomotive entities, comprising:
 - 5 a) a communication layer for communicating simultaneously via a set of RF communication links with respective remote transmitters and respective locomotive entities;
 - b) an intelligence layer communicating with said communication layer for processing data derived from signals received by said communication layer from
10 the RF communication links.
- 2) A network entity as defined in claim 1, wherein said intelligence layer is operative to process a command contained in a signal received from a first transmitter and destined to a first locomotive entity to produce a modified command.
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- 3) A network entity as defined in claim 2, wherein said intelligence layer is operative to transmit the modified command to said communication layer such that said communication layer can send a signal containing the modified command to the first locomotive entity.
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- 4) A network entity as defined in claim 3, wherein said intelligence layer is operative to produce a modified command at least partially on the basis of information other than information conveyed in the signal received from the first transmitter.
- 25 5) A network entity as defined in claim 4, wherein the information other than the information conveyed in the signal received from the first transmitter is derived from a signal sent to said communication layer from a second transmitter.
- 6) A network entity as defined in claim 5, wherein the signal received by said
30 communication layer from the second transmitter contains commands destined to a second locomotive entity of said plurality of locomotive entities.

- 7) A network entity as defined in claim 6, wherein the modified command directs the first locomotive to reduce speed.
- 8) A network entity as defined in claim 6, wherein the modified command directs the first locomotive to accelerate.
- 9) A network entity as defined in claim 1, wherein said communication layer is operative to create a log of events relating to operations of the plurality of locomotive entities derived from information contained in signals sent to said communication layer via the RF communication links.
- 10) A network entity as defined in claim 1, wherein said intelligence layer is operative to sense the presence in a signal received by said communication layer from a transmitter, an ancillary command directed to an ancillary device distinct from any one of the locomotive entities, the ancillary device command directing the ancillary device to perform a certain action.
- 11) A network entity as defined in claim 10, wherein said communication layer communicates with the ancillary device, said intelligence layer being operative to direct the ancillary device command to the ancillary device via said communication layer.
- 12) A network entity as defined in claim 11, wherein the intelligence layer includes an arbitration function for resolving conflicting ancillary device commands for the ancillary device sent from different transmitters via respective RF communication links.
- 13) A network entity as defined in claim 12, wherein the ancillary device is a railroad switch.
- 14) A network entity as defined in claim 1, wherein said intelligence layer is operative to sense presence in a signal received by said communication layer from a transmitter a media signal.

- 15) A network entity as defined in claim 14, wherein said intelligence layer includes a switching function for passing a media signal sent from a first transmitter to said communication layer via a first RF communication link at least to a second transmitter via a second communication link of said plurality of communication links.
- 16) A network entity as defined in claim 15, wherein the media signal includes address information identifying the second transmitter, said switching function switching the media signal to the second transmitter on the basis of the address information.
- 17) A network entity as defined in claim 16, wherein the media signal includes address information identifying a set of transmitters excluding the first transmitter, said switching function switching the media signal to the transmitters in the set on the basis of the address information.
- 18) A network entity as defined in claim 16, wherein the media signal includes audio information.
- 19) A network entity as defined in claim 16, wherein the media signal includes video information.
- 20) A network entity as defined in claim 1, wherein said intelligence includes a transmitter selector function to assign which transmitter in a set of transmitters will have authority to control a first locomotive entity, said transmitter selector operative to assign one of at least two modes of operation, namely a controlling mode and a non-controlling mode, said transmitter selector being operative to reject commands issued by a transmitter to which has been assigned a non-controlling mode and send to the first locomotive entity via said communication layer a command issued from a transmitter to which has been assigned a controlling mode.

- 21) A network entity as defined in claim 20 wherein said transmitter selector has the ability to discriminate different commands sent by the transmitters in the set.
- 22) A network entity as defined in claim 20, wherein said transmitter selector is
5 operative to reject a command directing the first locomotive entity to move issued by a transmitter to which has been assigned a non-controlling mode.
- 23) A network entity as defined in claim 21, wherein said transmitter selector is
10 operative to accept a command directing the first locomotive entity to brake from a transmitter having a non-controlling mode, and transmits the command to the first locomotive entity via said communication layer.
- 24) A network entity as defined in claim 23, wherein said transmitter selector is
15 operative to send information to the transmitters of the set via respective RF communication channels indicating the operative modes assigned to the respective transmitters in the set.
- 25) A network entity for remotely controlling a plurality of locomotive entities, comprising:
- 20 a) a communication layer for communicating simultaneously via a set of RF communication links with respective remote transmitters and respective locomotive entities;
- b) an intelligence layer communicating with said communication layer, said intelligence layer being capable to acquire at least a first and a second mode of
25 operation, in the first mode of operation said intelligence layer allowing commands issued from the transmitters and conveyed via respective RF communication links to be transmitted to the respective locomotive entities via respective RF communication links, in the second mode of operation, said intelligence layer being operative to send to one or more transmitters via
30 respective RF communication links data to allow the one or more transmitters to perform a software upgrade.

26) A network entity as defined in claim 25, wherein in said second mode of operation said intelligence layer being operative to send to one or more locomotive entities via respective RF communication links data to allow the one or more transmitters to perform a software upgrade.

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27) A network entity as defined in claim 25, wherein the data to allow the one or more transmitters to perform a software upgrade includes a software load.